Exhibit 16

Belews Creek Dan River Summary Excerpt 2013
December 2014

BELEWS CREEK STEAM STATION

2013 DAN RIVER SUMMARY

Principal Investigators:

Jason S. Brown
John E. Derwort

DUKE ENERGY
Environmental Services
McGuire Environmental Center
13339 Hagers Ferry Road
Huntersville, NC 28078

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EXECUTIVE SUMMARY

A decline in the Belews Lake fishery was observed during 1976 and was linked to trace element (principally selenium) contamination and bioaccumulation resulting from discharge of Belews Creek Steam Station (BCSS) ash basin effluent to the lake. In conjunction with the conversion from a wet fly-ash to a dry fly-ash handling system, the ash basin effluent was re-routed to the Dan River in November 1985 as one of several remedies to the contamination problem. North Carolina Department of Environmental and Natural Resources (NCDENR) subsequently mandated that Duke Energy monitor the recovery of Belews Lake and assess the impact of the new discharge on the biota, water quality, and sediment chemistry in the Dan River. As required by the National Pollution Discharge Elimination System (NPDES) permit number NC0024406, environmental monitoring upstream and downstream of the BCSS ash basin discharge to the Dan River continued during 2013.

Skeletal muscle selenium concentrations in suckers and sunfish collected from Dan River sample locations both upstream and downstream of the ash basin discharge remained within or slightly above the typical background range (0.2 to 0.6 µg/g, wet weight). Although selenium concentrations in fish downstream of the ash basin discharge are marginally higher than the upstream location, the concentrations have been generally stable within and among years, indicating no appreciable bioaccumulation or impairment of the Dan River fish community due to the operation of BCSS. Selenium concentrations were well below the 10 µg/g, wet weight level for issuance of a consumption advisory in North Carolina.

Total macroinvertebrate taxa numbers in 2013 were lower in both upstream and downstream locations than those in 2012, although they represented the fourth and third highest taxa numbers recorded, respectively, for the presented time period. Numbers of Ephemeroptera, Plecoptera, and Tricoptera (EPT) taxa increased in both upstream and downstream locations during 2013 as compared to 2012. Bioclassification scores (the mean of the EPT score and the biotic index) both upstream and downstream of the BCSS ash basin discharge increased from 2012 to 2013. Bioclassification upstream of the BCSS discharge was in the "Good" range in 2013 and has most often been in the "Good" to "Excellent" ranges since 2000. In 2013, the downstream location's bioclassification was "Excellent", the highest recorded value for the period presented, and has been in the "Good" range from 2007 through 2012.

Selenium and arsenic concentrations in macroinvertebrates were generally higher downstream than upstream from the ash basin discharge in 2013, as during most previous years. Selenium concentrations in macroinvertebrates were generally lower than those in 2012 and were in the mid to low historical ranges. Arsenic concentrations in 2013 were generally slightly lower at both upstream and downstream locations than in 2012.

Dan River water quality in 2013 was similar to historical data. Most Dan River water chemistry indicators and analyte concentrations remained comparable to those measured prior to the diversion of the BCSS ash basin discharge to the Dan River. Sampling indicated that both temperature and DO met applicable water quality standards in 2013. Additionally, pH values were compatible with designated use classifications for the water bodies (Class WS-V, WS-IV and C).

Spatial differences in 2013 showed increased concentrations of several dissolved solids constituents and increases in specific conductance downstream of the ash basin discharge in the Dan River. This phenomenon was first encountered in 2008; however, increases were less notable in 2013 than increases in the previous five years due to higher 2013 summer flows. This increase is primarily attributed to the BCSS ash pond receiving flue gas desulfurization (FGD), or "scrubber" process wastewater, which is characterized by elevated levels of dissolved solids. Recently observed downstream increases in calcium, magnesium, sulfate, and chloride remain below water quality standards and are not anticipated to impair aquatic life or other uses of the Dan River. Boron concentrations occurring downstream of the BCSS ash basin outfall in the Dan River consistently remained low in 2013 (analysis for Boron was initiated in 2010).

Beginning in 2011, Duke Energy began monitoring bromide concentrations in the Dan and Smith Rivers. Although somewhat elevated, observed bromide concentrations are not anticipated to have any effects on aquatic life but could present challenges to downstream drinking water operations at Madison and Eden, NC, due to incidental production of halogenated byproducts during chlorination.

Similar to previous years, a comparison of 2013 water quality immediately upstream and downstream of the BCSS ash basin NPDES outfall identified several analytes that increased significantly ($P < 0.05$) as a result of major dissolved minerals linked to treated BCSS FGD wastewater inputs. A statistical analysis of the 2013 water quality results combined with historical water quality data from this sampling program showed significant ($P < 0.05$)

increases from upstream to downstream in pH (slight downstream increase in alkaline pH), specific conductance, alkalinity, magnesium, potassium, sodium, silica, sulfate, chloride, nitrate+nitrite, total nitrogen, orthophosphate, total phosphorus, soluble copper and total copper.

As in previous years, selenium mass loading rates were computed for 2013. Estimated mass loading of selenium to the Dan River via the BCSS ash basin discharge in 2013 (183 g/d) was within the range exhibited in recent years.

As noted in prior years, 2013 Dan River (and lower Smith River) aqueous trace element concentrations remained generally low. Arsenic, cadmium, lead and selenium concentrations were consistently below laboratory reporting limits and North Carolina water quality standards. Copper concentrations were generally below laboratory reporting limits and also remained below the respective NCDENR water quality action levels.

Sediment trace element concentrations to date show no spatial trends that would potentially implicate the BCSS ash basin discharge as a significant source to stream bed sediment concentrations of either selenium or arsenic. Fine sediments collected during 2013 from the Dan River in the vicinity of BCSS yielded low concentrations of selenium (< 2.7 µg/g) and arsenic (≤ 5.2 µg/g), similar to previous years.

Results from 2013 monitoring of Dan River biota, water quality, and sediment chemistry in the vicinity of the BCSS ash basin discharge indicate that the effluent continues to have negligible impact on the receiving stream. Most Dan River water chemistry indicators and analyte concentrations remained comparable to those measured prior to the diversion of the BCSS ash basin discharge to the Dan River. Additionally, selenium concentrations in fish skeletal muscle were well below the threshold for issuance of a consumption advisory. Trace element concentrations in macroinvertebrates were within the range of those previously measured and similar to those from a reference site. Total numbers of macroinvertebrate taxa, EPT taxa, and bioclassification scores for 2013 indicate that the Dan River in the vicinity of BCSS supports balanced and indigenous macroinvertebrate populations. Overall, results from 2013 monitoring were similar to those observed since 1985 when this monitoring program began and continue to indicate the absence of any short-term and long-term negative impacts that would limit the perpetuation of balanced indigenous aquatic communities.

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CHAPTER 1

INTRODUCTION

BACKGROUND INFORMATION

Belews Creek Steam Station (BCSS) is a base-load, coal-fired electric generating facility with two 1,120-MW units, located on Belews Lake in Stokes County, NC. Unit 1 began commercial operation in August 1974, followed by Unit 2 in December 1975. During early operational years, a decline in the Belews Lake fishery became evident and was ultimately associated with trace element (principally selenium) contamination and bioaccumulation resulting from discharge of BCSS ash basin effluent to the lake.

In 1984 a dry fly-ash collection system was installed at BCSS to eliminate most wet ash sluicing, thereby substantially decreasing selenium and other trace element inputs to the ash basin. Re-direction of ash basin effluent to the Dan River was implemented in November 1985, precluding future ash basin effluent introductions to Belews Lake. Related to these modifications, two required environmental monitoring programs were stipulated by the North Carolina Department of Environment and Natural Resources (NCDENR) in conjunction with the BCSS National Pollutant Discharge Elimination System (NPDES) permit, and these permit requirements continue (NC0024406; NCDENR 2009 and 2012). One program was designed to monitor the recovery of the Belews Lake ecosystem, while the other was to assess the impact of the new discharge to the Dan River. Results of the Dan River monitoring program, described in this report, are provided to NCDENR annually.

Environmental monitoring upstream and downstream of the BCSS ash basin discharge continued in 2013 as required by the BCSS NPDES permit (Table 1-1; Figure 1-1). As in the past, monitoring activities were designed to characterize potential impacts to selected Dan River biota, water quality, and sediment chemistry resulting from BCSS ash basin effluent. Details of monitoring methods and frequencies, as well as a discussion of 2013 monitoring results, are provided in subsequent chapters of this report.

DAN RIVER FLOW CHARACTERIZATION

Local precipitation can significantly impact Dan River hydrology. Higher flows resulting from precipitation events can mask constituents and change overall water quality, thereby necessitating the incorporation of flow data into this report. Dan River hydrology will be discussed in detail and incorporated into biological sections, where appropriate.

Total annual precipitation in 2013 was higher than average, as recorded at the Greensboro, NC airport (Table 1-2; NCDC 2014). Month-to-month precipitation totals, however, reflected variable meteorological conditions. There was a cumulative precipitation surplus at the Greensboro site through all twelve months compared to a 30-year average (1981-2010), with the year ending at a 19% surplus.

Precipitation data recorded at the recently installed United States Geological Survey (USGS) Pine Hall, NC site on the Dan River near Belews Lake (and closest to the study area) reflected trends similar to the Greensboro airport site, some 26 km to the south-southeast. The most prominent month-to-month discrepancies between the two sites were evident for June, July and August precipitation totals (Figure 1-2). These site-to-site differences were likely attributable to effects of localized rainfall associated with thunderstorm activity during the warmer portion of the year.

Variable precipitation patterns throughout 2013 in the upper Dan River basin substantially influenced seasonal river flows (Figure 1-3). Moderate precipitation prior to May resulted in fairly typical Dan River flows early in the year, as observed at both the long-term USGS station near Wentworth, NC (drainage area = 2,727 km^2) and at the newer station at Pine Hall, NC near BCSS (drainage area = 1,298 km^2). The hydrographs for the remainder of 2013, however, reflected atypical stream flow patterns in response to higher summer rainfall totals. Monthly median flow percentiles were 75%, 93% and 90% for the months of June, July and August, respectively. Overall, however, Dan River flows recorded during the calendar year were mostly reflective of long-term trends observed in the southeastern Piedmont (i.e. higher stream discharge in winter-spring and minimal flows in the summer-fall period) (USGS 2014; Figures 1-3 through 1-5).

The maximum 2013 daily average Dan River flow, 507 m^3/s (17,900 cfs), occurred on January 18. This and other lower-magnitude peak river flows evident in the hydrographs were primarily responsive to short-term rainfall events in the upper Dan River watershed.

Lower flows during the calendar year were observed in late summer, although the minimum daily average flow, 14.3 m^3/s (504 cfs), was recorded on January 11.

Table 1-1. Summary of environmental monitoring locations and sampling activity on the Dan and Smith Rivers during 2013. (Locations displayed on Figure 1-1.)

Report Location Designation	Duke Energy Location Number	NCDENR Water Quality Classification	River ––––––– County	Location Description ––––––––––––––––––––– Samples Collected	Latitude[a] N	Longitude W
A′	710.0	WS-V	Dan River –––––––– Stokes Co.	6.0 km (3.7mi) upstream of US Highway 311 bridge adjacent to Hemlock Golf Course ––––––––––––––––––––– Fish	36° 22.133'	80° 07.541'
A		WS-V		US Highway 311 bridge east of Walnut Cove, NC; 4.3 km (2.7 mi) upstream of BCSS ash basin discharge ––––––––––––––––––––– Macroinvertebrates, Chemistry (incl. sediments)	36° 19.620'	80° 05.724'
B	720.0	WS-IV	Dan River –––––––– Rockingham Co.	Off SR 1138 at Pine Hall Brick factory, southeast of Madison, NC; 14.8 km (9.2 mi) downstream of BCSS ash basin discharge ––––––––––––––––––––– Fish, Macroinvertebrates, Chemistry (incl. sediments)	36° 22.436'	79° 59.764'
C	729.0	C	Smith River –––––––– Rockingham Co.	Kings Highway bridge in Eden, NC, 1.2 km (0.7 mi) upstream of confluence with Dan River ––––––––––––––––––––– Chemistry	36° 29.493'	79° 45.060'
D	733.1	C	Dan River –––––––– Rockingham Co.	Dan River Steam Station, below diversion dam and in thermal discharge plume; 55.2 km (34.3 mi) downstream of BCSS ash basin discharge ––––––––––––––––––––– Chemistry (incl. sediments)	36° 29.151'	79° 43.133'
E	705.0	C	Dan River –––––––– Rockingham Co.	NC Highway 700 bridge, east of Eden, NC; 59.2 km (36.8 mi) downstream of BCSS ash basin discharge ––––––––––––––––––––– Fish, Chemistry (incl. sediments)	36° 29.936'	79° 40.879'

[a] Latitude and longitude data obtained from TOPO! USGS mapping software (National Geographic Holdings, Inc. 2001)

Table 1-2. Precipitation at Greensboro, NC during 2013. (Data from NCDC 2014.)[b]

Month	2013 Precipitation		Historical Average[c]		Departure From Average		Departure From Average
	(cm)	(in)	(cm)	(in)	(cm)	(in)	(%)
Jan	13.89	5.47	7.77	3.06	6.12	2.41	79%
Feb	8.13	3.20	7.52	2.96	0.61	0.24	8%
Mar	7.24	2.85	9.47	3.73	-2.24	-0.88	-24%
Apr	9.53	3.75	9.07	3.57	0.46	0.18	5%
May	7.82	3.08	8.59	3.38	-0.76	-0.30	-9%
Jun	21.26	8.37	9.47	3.73	11.79	4.64	124%
Jul	15.29	6.02	11.38	4.48	3.91	1.54	34%
Aug	14.35	5.65	9.86	3.88	4.50	1.77	46%
Sep	5.41	2.13	10.64	4.19	-5.23	-2.06	-49%
Oct	2.82	1.11	7.95	3.13	-5.13	-2.02	-65%
Nov	9.17	3.61	7.90	3.11	1.27	0.50	16%
Dec	13.18	5.19	7.57	2.98	5.61	2.21	74%
Total	128.09	50.43	107.26	42.23	20.83	8.20	19%

[b] Precipitation totals as water equivalent centimeters and inches
[c] Averaging period for normal values is 1981 – 2010.

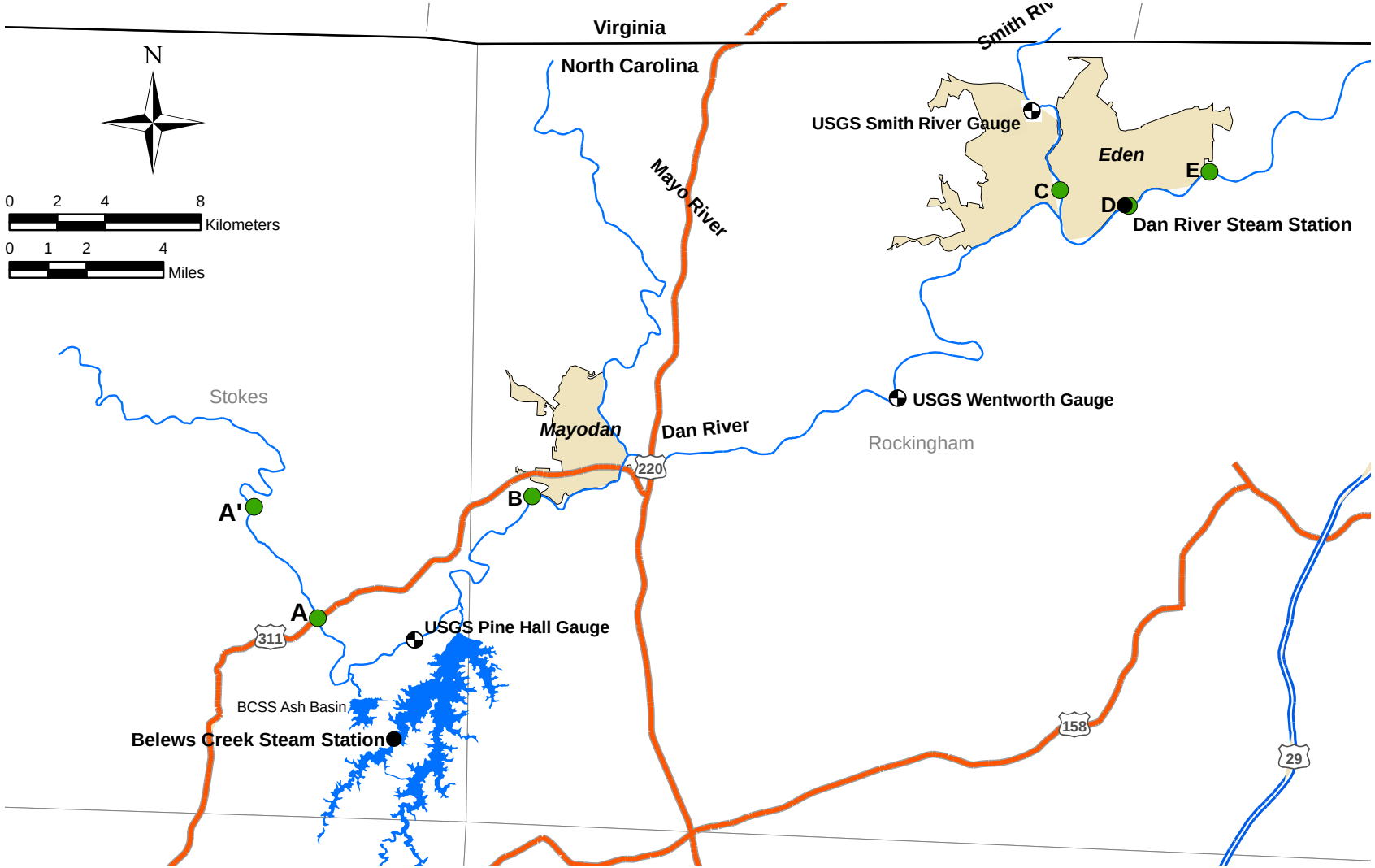

Figure 1-1. Monitoring locations in Smith River and Dan River upstream and downstream of the ash basin discharge of BCSS, Stokes and Rockingham Counties, NC.

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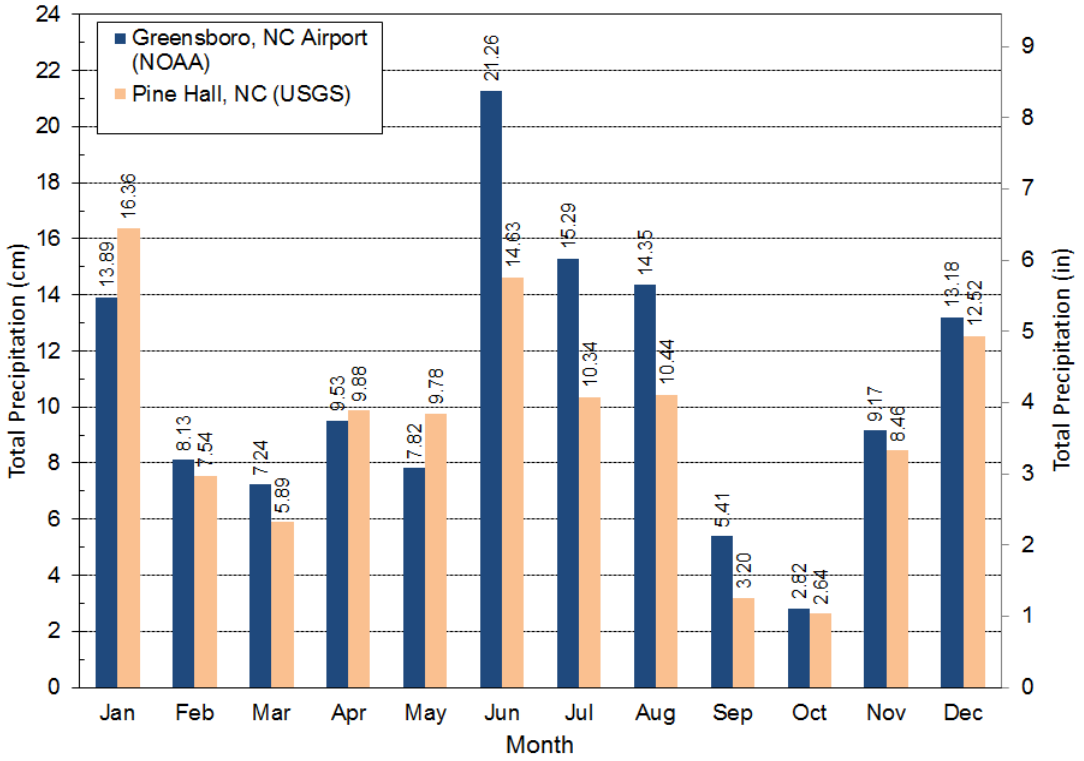

Figure 1-2. Total monthly precipitation (water equivalent cm) measured in 2013 at the Greensboro, NC airport compared to precipitation recorded at the Pine Hall, NC USGS monitoring site (USGS Station 02069000).

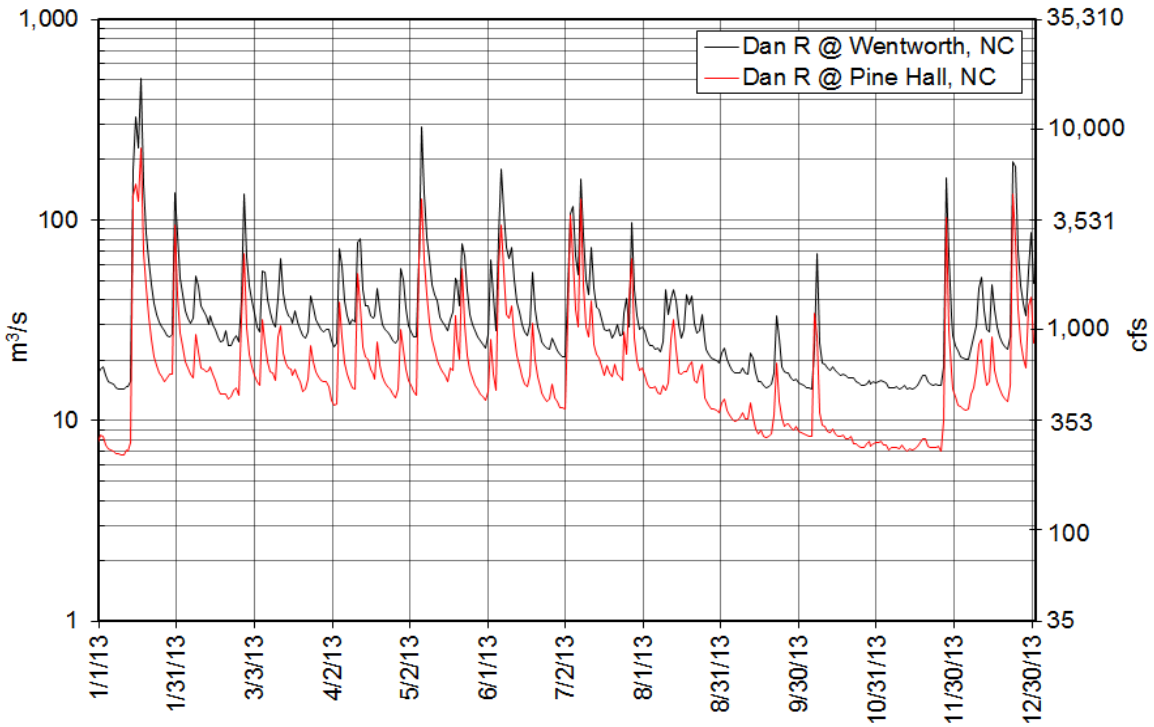

Figure 1-3. Hydrograph of 2013 daily average Dan River flows at Wentworth and Pine Hall, NC (USGS Stations 02071000 and 02069000, respectively).

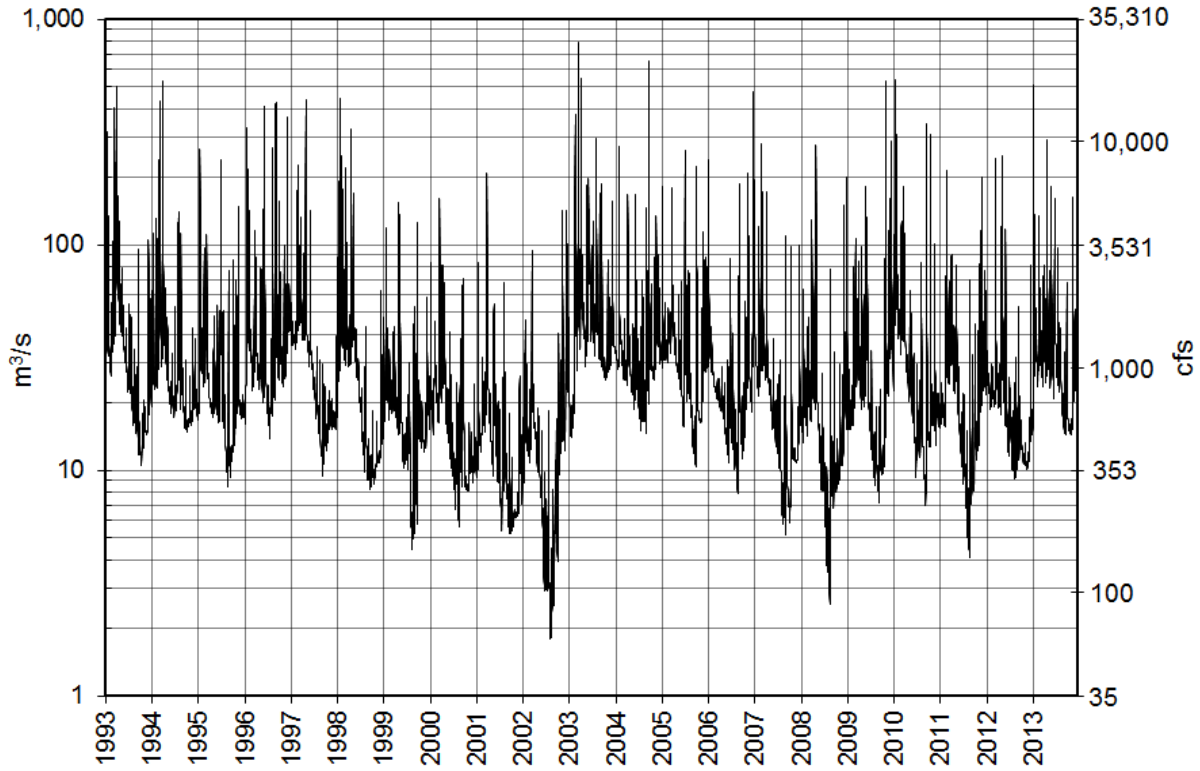

Figure 1-4. Hydrograph of daily average flows for the Dan River near Wentworth, NC (USGS Station 02071000) from 1993 – 2013.

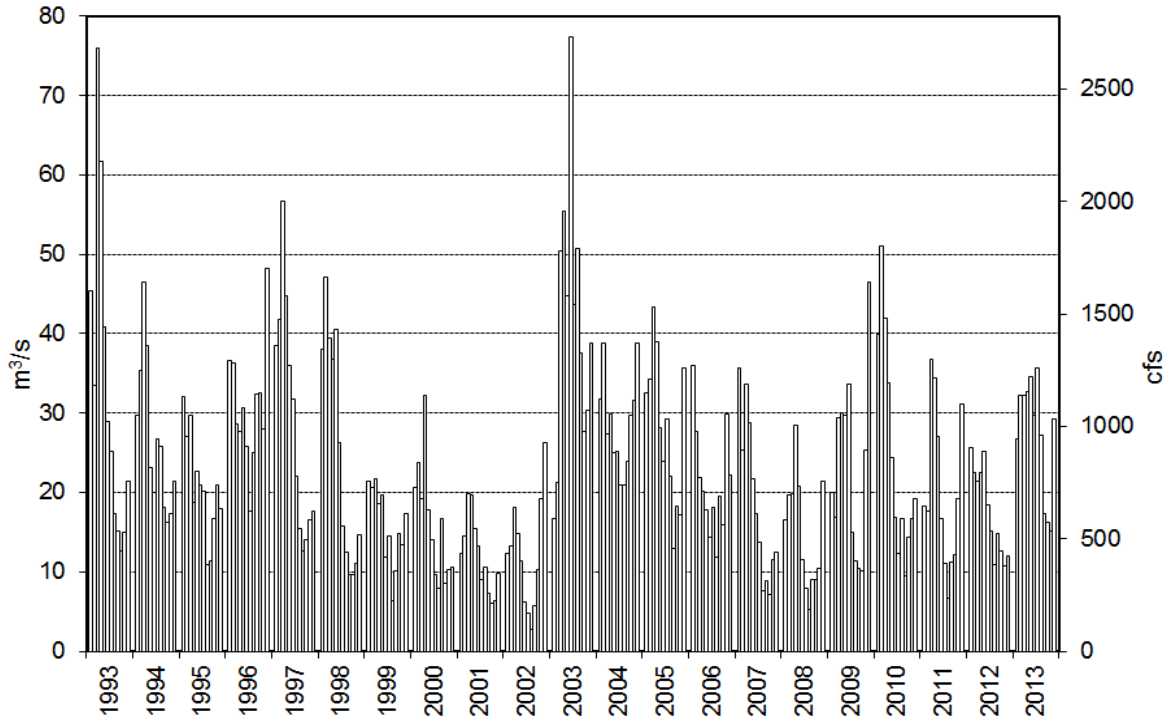

Figure 1-5. Monthly median flows for the Dan River near Wentworth, NC (USGS Station 02071000) from 1993 – 2013.

CHAPTER 2

FISH

MATERIALS AND METHODS

Selenium concentrations were measured in skeletal muscle tissue of golden redhorse sucker *Moxostoma erythrurum* and redbreast sunfish *Lepomis auritus* collected by electrofishing on July 31 and August 1, 2013 at locations upstream (A′) and downstream (B and E) of the Belews Creek Steam Station (BCSS) ash basin discharge in the Dan River (Table 1-1 and Figure 1-1). The upstream Location A was altered to Location A′ during the 1999 drought for better boat access to collect fish. Following the standard operating procedures for fish tissue assessments (NCDENR 2006a), three replicate samples (each with three individuals) were collected per species at each location such that the total length (TL) of the shortest fish was ≥75% of the TL of the longest fish within each replicate. Fish were placed in labeled polyethylene bags and remained on ice until returned to the lab. Once at the lab, they were frozen until processed.

Sample processing in 2013 was similar to that conducted in 2012 (Duke Energy 2013), where epaxial muscle tissue was dissected from each fish within each replicate and composited in an acid-washed polyethylene vial. Selenium concentrations (µg/g, wet weight) were determined by neutron activation analysis at the North Carolina State University Nuclear Services Laboratory in Raleigh, NC. Graphical methods were used to examine temporal and spatial trends of selenium concentrations in fish skeletal muscle.

RESULTS AND DISCUSSION

Selenium concentrations (µg/g, wet weight) in composited samples of fish muscle tissue in 2013 continued to decline from the historic elevated levels at Location B in 2000 and 2001 (Figures 2-1 and 2-2) due to the combination of elevated selenium loading from the BCSS ash basin (Figure 4-12) and below normal river discharge, due to a prolonged drought. However, concentrations have declined since 2001 as selenium loading rates returned to levels that occurred prior to 2000. Concentrations varied in suckers (0.15-0.52) and sunfish

(0.18—0.66) collected from the Dan River in 2013 (Table 2-1). Concentrations were highest at Location B, and lowest at Location A′.

Mean selenium concentrations in suckers from Locations A′ and E have remained low since 1984 and have been slightly higher and more variable at Location B. Concentrations in 2013 decreased slightly at Locations B and E from 2012 levels, while a small increase was observed at Location A′.

Mean selenium concentrations in sunfish at Location A′ have also remained low since 1984 and have been slightly higher and more variable at Locations B and E. Concentrations in 2013 increased slightly at Location B and decreased slightly from 2012 levels at Locations A′ and E.

Overall, mean selenium concentrations in composite samples of sucker and sunfish muscle tissue remained below maximum concentrations observed in 2001 and slightly below or within levels representing background ranges (0.2 to 0.6 µg/g, wet weight) for fish skeletal muscle tissue (Sorensen 1991). Concentrations are also consistently below levels considered toxic to fish (Hamilton 2003; Lemly 1993) and the 10-µg/g, wet weight, concentration utilized for issuance of a consumption advisory in NC (NCDHH 2007). Although Location B (downstream of the ash basin discharge) has selenium concentrations that are consistently higher than Location A′ (upstream), the concentrations have been generally stable within and among years, indicating a minimal level of bioaccumulation and no impairment of the Dan River fish community due to the operation of BCSS.

Table 2-1. Species, total length (TL), and concentrations (wet weight) of selenium in fish skeletal muscle tissue collected from three locations in the Dan River, NC in 2013.

Location	Species	TL (mm)		Selenium (µg/g)
A'	Golden redhorse	255, 262, 280		0.15
	Golden redhorse	295, 300, 301		0.19
	Golden redhorse	312, 338, 345		0.25
			Mean	**0.20**
	Redbreast sunfish	147, 149, 157		0.22
	Redbreast sunfish	121, 124, 131		0.23
	Redbreast sunfish	155, 159, 173		0.18
			Mean	**0.21**
B	Golden redhorse	258, 273, 300		0.33
	Golden redhorse	303, 312, 318		0.52
	Golden redhorse	339, 367, 376		0.39
			Mean	**0.41**
	Redbreast sunfish	131, 140, 144		0.56
	Redbreast sunfish	115, 115, 117		0.66
	Redbreast sunfish	107, 108, 113		0.50
			Mean	**0.57**
E	Golden redhorse	285, 299, 308		0.28
	Golden redhorse	252, 264, 280		0.28
	Golden redhorse	287, 288, 289		0.28
			Mean	**0.28**
	Redbreast sunfish	116, 118, 125		0.40
	Redbreast sunfish	130, 132, 134		0.39
	Redbreast sunfish	128, 129, 130		0.49
			Mean	**0.43**

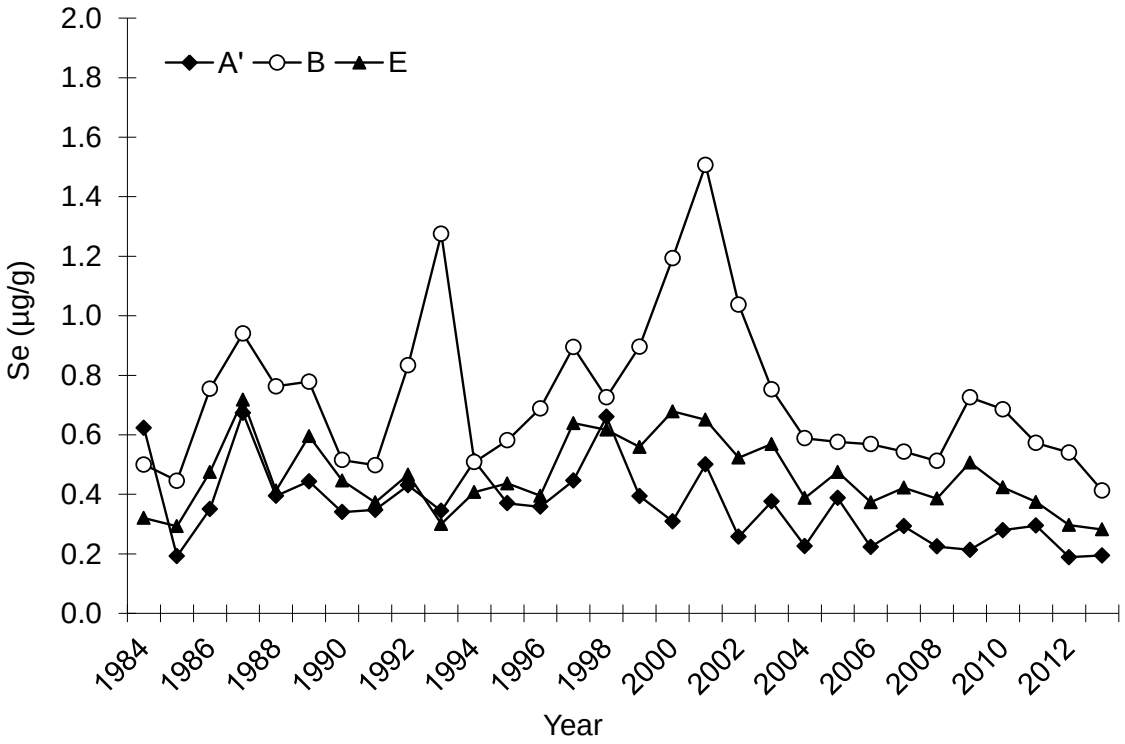

Figure 2-1. Mean selenium concentrations (wet weight) in suckers collected annually from three locations in the Dan River, NC.

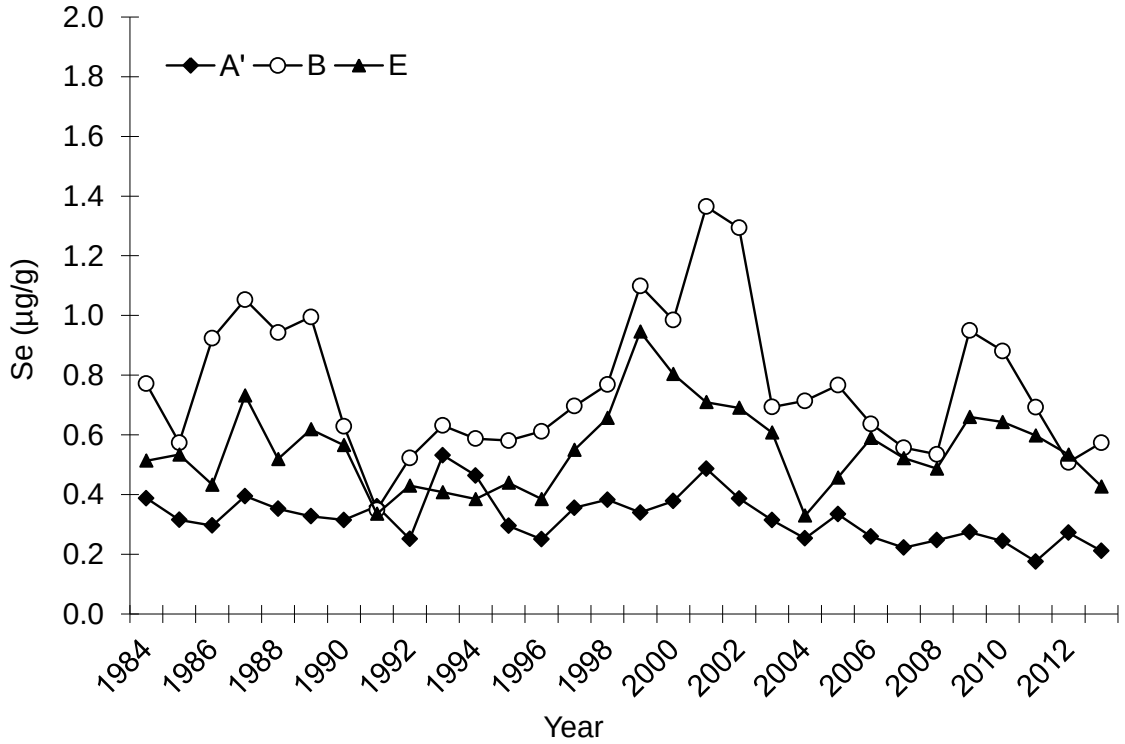

Figure 2-2. Mean selenium concentrations (wet weight) in sunfish collected annually from three locations in the Dan River, NC.